

**WHAT IS CLAIMED IS:**

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding a polypeptide comprising amino acids from about -51 to about 360 in SEQ ID NO:2;

(b) a nucleotide sequence encoding a polypeptide comprising amino acids from about -50 to about 360 in SEQ ID NO:2;

(c) a nucleotide sequence encoding a polypeptide comprising amino acids from about 1 to about 360 in SEQ ID NO:2;

(d) a nucleotide sequence encoding a polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920;

(e) a nucleotide sequence encoding the mature DR5 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920;

(f) a nucleotide sequence encoding the DR5 extracellular domain;

(g) a nucleotide sequence encoding the DR5 transmembrane domain;

(h) a nucleotide sequence encoding the DR5 intracellular domain;

(i) a nucleotide sequence encoding the DR5 death domain; and

(j) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), or (i) above.

2. The nucleic acid molecule of claim 1, wherein said polynucleotide has the nucleotide sequence in SEQ ID NO:1.

3. The nucleic acid molecule of claim 1, wherein said polynucleotide has the nucleotide sequence encoding the DR5 polypeptide having the amino acid sequence in SEQ ID NO:2.

4. The nucleic acid molecule of claim 1, wherein said polynucleotide has the nucleotide sequence in SEQ ID NO:1 encoding the mature DR5 polypeptide having the amino acid sequence in SEQ ID NO:2.

5. The nucleic acid molecule of claim 1, wherein said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in ATCC Deposit No. 97920.

5 6. The nucleic acid molecule of claim 1, wherein said polynucleotide has the nucleotide sequence encoding the DR5 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920.

10 7. The nucleic acid molecule of claim 1, wherein said polynucleotide has the nucleotide sequence encoding the mature DR5 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920.

15 8. An isolated nucleic acid molecule comprising a polynucleotide sequence which hybridizes under stringent hybridization conditions to a polynucleotide sequence having a nucleotide sequence identical to a nucleotide sequence in (a), (b), (c), (d), (e), (f), (g), (h), (i), or (j) of claim 1, wherein said polynucleotide which hybridizes does not hybridize under stringent hybridization conditions to a polynucleotide having a nucleotide sequence consisting of only adenosine nucleotides or of only thymidine nucleotides.

20 9. An isolated nucleic acid molecule comprising a polynucleotide which encodes the amino acid sequence of an epitope-bearing portion of a DR5 polypeptide having an amino acid sequence in (a), (b), (c), (d), (e), (f), (g), (h), or (i) of claim 1.

25 10. The isolated nucleic acid molecule of claim 9, which encodes an epitope-bearing portion of a DR5 polypeptide selected from the group consisting of: a polypeptide comprising amino acid residues from about 11 to about 59 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 68 to about 113 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 173 to about 220 in SEQ ID NO:2; and a polypeptide comprising amino acid residues from about 224 to about 319 in SEQ ID NO:2.

30 11. The isolated nucleic acid molecule of claim 1, which encodes the DR5 extracellular domain.

12. The isolated nucleic acid molecule of claim 1, which encodes the DR5 transmembrane domain.

13. The isolated nucleic acid molecule of claim 1, which encodes the DR5 intracellular domain

14. A method for making a recombinant vector comprising inserting an isolated nucleic acid molecule of claim 1 into a vector.

15. A recombinant vector produced by the method of claim 14.

16. A method of making a recombinant host cell comprising introducing an isolated nucleic acid molecule of claim 1 into a host cell.

17. A recombinant host cell produced by the method of claim 16.

18. A recombinant method for producing a DR5 polypeptide, comprising culturing the recombinant host cell of claim 17 under conditions such that said polypeptide is expressed and recovering said polypeptide.

19. An isolated DR5 polypeptide comprising an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:

(a) amino acids from about -51 to about 360 in SEQ ID NO:2;

(b) amino acids from about -50 to about 360 in SEQ ID NO:2;

(c) amino acids from about 1 to about 360 in SEQ ID NO:2;

(d) the amino acid sequence of the DR5 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920;

(e) the amino acid sequence of the mature DR5 polypeptide having the amino acid encoded by the cDNA clone contained in ATCC Deposit No. 97920;

(f) the amino acid sequence of the DR5 extracellular domain;

(g) the amino acid sequence of the DR5 transmembrane domain;

(h) the amino acid sequence of the DR5 intracellular domain;

(i) the amino acid sequence of the DR5 death domain;

(j) the amino acid sequence of an epitope-bearing portion of any one of the polypeptides of (a), (b), (c), (d), (e), (f), (g), (h), (i), or (j).

20. An isolated polypeptide comprising an epitope-bearing portion of the DR5 protein, wherein said portion is selected from the group consisting of: a polypeptide comprising amino acid residues from about amino acid residues from about 11 to about 59 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 68 to about 113 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 173 to about 220 in SEQ ID NO:2; and a polypeptide comprising amino acid residues from about 224 to about 319 in SEQ ID NO:2.

21. An isolated antibody that binds specifically to a DR5 polypeptide of claim 19.

22. An isolated nucleic acid molecule comprising a polynucleotide having a sequence at least 95% identical to a sequence selected from the group consisting of:

- (a) the nucleotide sequence of clone HAPBU13R (SEQ ID NO:6);
- (b) the nucleotide sequence of clone HSBBU76R (SEQ ID NO:7);
- (c) the nucleotide sequence of a portion of the sequence shown in Figure 1 (SEQ ID NO:1) wherein said portion comprises at least 50 contiguous nucleotides from nucleotide 284 to 1,362; and

- (d) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b) or (c) above.

23. An isolated nucleic acid molecule comprising a polynucleotide encoding a DR5 polypeptide wherein, except for at least one conservative amino acid substitution, said polypeptide has a sequence selected from the group consisting of:

- (a) a nucleotide sequence encoding a polypeptide comprising amino acids from about -51 to about 360 in SEQ ID NO:2;
- (b) a nucleotide sequence encoding a polypeptide comprising amino acids from about -50 to about 360 in SEQ ID NO:2;
- (c) a nucleotide sequence encoding a polypeptide comprising amino acids from about 1 to about 360 in SEQ ID NO:2;
- (d) a nucleotide sequence encoding a polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920;
- (e) a nucleotide sequence encoding the mature DR5 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920;
- (f) a nucleotide sequence encoding the DR5 extracellular domain;

- (g) a nucleotide sequence encoding the DR5 transmembrane domain;
- (h) a nucleotide sequence encoding the DR5 intracellular domain;
- (i) a nucleotide sequence encoding the DR5 receptor extracellular and intracellular domains with all or part of the transmembrane domain deleted;
- (j) a nucleotide sequence encoding the DR5 death domain; and
- (k) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), (i), or (j).

24. An isolated DR5 polypeptide wherein, except for at least one conservative amino acid substitution, said polypeptide has a sequence selected from the group consisting of:

- (a) amino acids from about -51 to about 360 in SEQ ID NO:2;
- (b) amino acids from about -50 to about 360 in SEQ ID NO:2;
- (c) amino acids from about 1 to about 360 in SEQ ID NO:2;
- (d) the amino acid sequence of the DR5 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920;
- (e) the amino acid sequence of the mature DR5 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit No. 97920;
- (f) the amino acid sequence of the DR5 receptor extracellular domain;
- (g) the amino acid sequence of the DR5 receptor transmembrane domain;
- (h) the amino acid sequence of the DR5 receptor intracellular domain;
- (i) the amino acid sequence of the DR5 receptor extracellular and intracellular domains with all or part of the transmembrane domain deleted;
- (j) the amino acid sequence of the DR5 receptor death domain; and
- (k) the amino acid sequence of an epitope-bearing portion of any one of the polypeptides of (a), (b), (c), (d), (e), (f), (g), (h), (i), or (j).

25. A pharmaceutical composition comprising the polypeptide of claim 19 and a pharmaceutically acceptable carrier.

26. A pharmaceutical composition comprising the antibody of claim 21 and a pharmaceutically acceptable carrier.

27. A pharmaceutical composition comprising the polypeptide of claim 24 and a pharmaceutically acceptable carrier.

28. A fusion protein comprising the polypeptide of claim 19 fused to a heterologous polypeptide.

29. The isolated nucleic acid of claim 8, wherein said nucleic acid encodes a protein which is able to be bound by an antibody to a DR5 polypeptide, wherein said polypeptide has the amino acid sequence in SEQ ID NO:2

30. A method for making a recombinant vector comprising inserting an isolated nucleic acid molecule of claim 8 into a vector.

31. A recombinant vector produced by the method of claim 30.

32. A method of making a recombinant host cell comprising introducing an isolated nucleic acid molecule of claim 8 into a host cell.

33. A recombinant host cell produced by the method of claim 32.

34. A recombinant method for producing a polypeptide, comprising culturing the recombinant host cell of claim 33 under conditions such that said polypeptide is expressed and recovering said polypeptide.